MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

BDS2874 – MANAGEMENT DECISION SCIENCE

(All sections / Groups)

02 MARCH 2020
9.00 a.m. – 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of **5 pages** excluding the cover page.
2. This question paper has two sections. **Section A** has **ten (10)** multiple choice questions. **Section B** has **three (3)** structured questions.
3. Attempt ALL questions.
4. Record your answers to Section A questions in the multiple choice answer sheet provided.
5. Write your answers to Section B questions in the answer booklet provided.

7. Which of the following is the technique to solve a linear programming problem?
   A. Corner point method
   B. Critical path method
   C. Hungarian method
   D. Northwest corner method

8. In linear programming, sensitivity analysis is conducted to examine the effect of changes of the following areas, EXCEPT:
   A. Contribution rates for each variable in the objective function.
   B. Technological coefficients in the left-hand side of the constraints.
   C. Methods to solve the problem.
   D. Available resources in the right-hand side of the constraints.

9. In linear programming, what does the right-hand side value of a constraint represent?
   A. Profits earned.
   B. Costs incurred.
   C. Resources available to the firm.
   D. Optimal solution.

10. In linear programming, what is the reason to use the simplex method?
    A. To find the feasible region in a graph.
    B. To perform sensitivity analysis.
    C. To solve the problem when graphical techniques cannot be used.
    D. To formulate the mathematical model.

Continued...

iii) Calculate the annual ordering cost. (3 marks)

iv) What is the total annual inventory cost? (3 marks)

b) A manager has listed all activities required for conducting simulation project and identified the immediate predecessor activity and the expected duration (in months) for each activity. The summary information is given in the table below:

Activity	Activities	Expected duration (months)	Predecessor
A	Problem formulation	5	-
B	Project planning	2	-
C	System definition	5	A, B
D	Input data	25	C
E	Model translation	20	C
F	Verification	10	D, E
G	Validation	5	F
H	Experimental design	2	C, G
I	Analysis	10	H
J	Report and presentation	10	I

i) Draw a network for this simulation project. (5 marks)

ii) Compute the earliest start, earliest finish, latest start, latest finish and slack times.

(10 marks)

iii) Determine the critical path and the expected project completion time. (2 marks)

iv) If several activities could be delayed, which activities should the manager choose to delay without affecting the expected project completion time?

(1 mark)

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